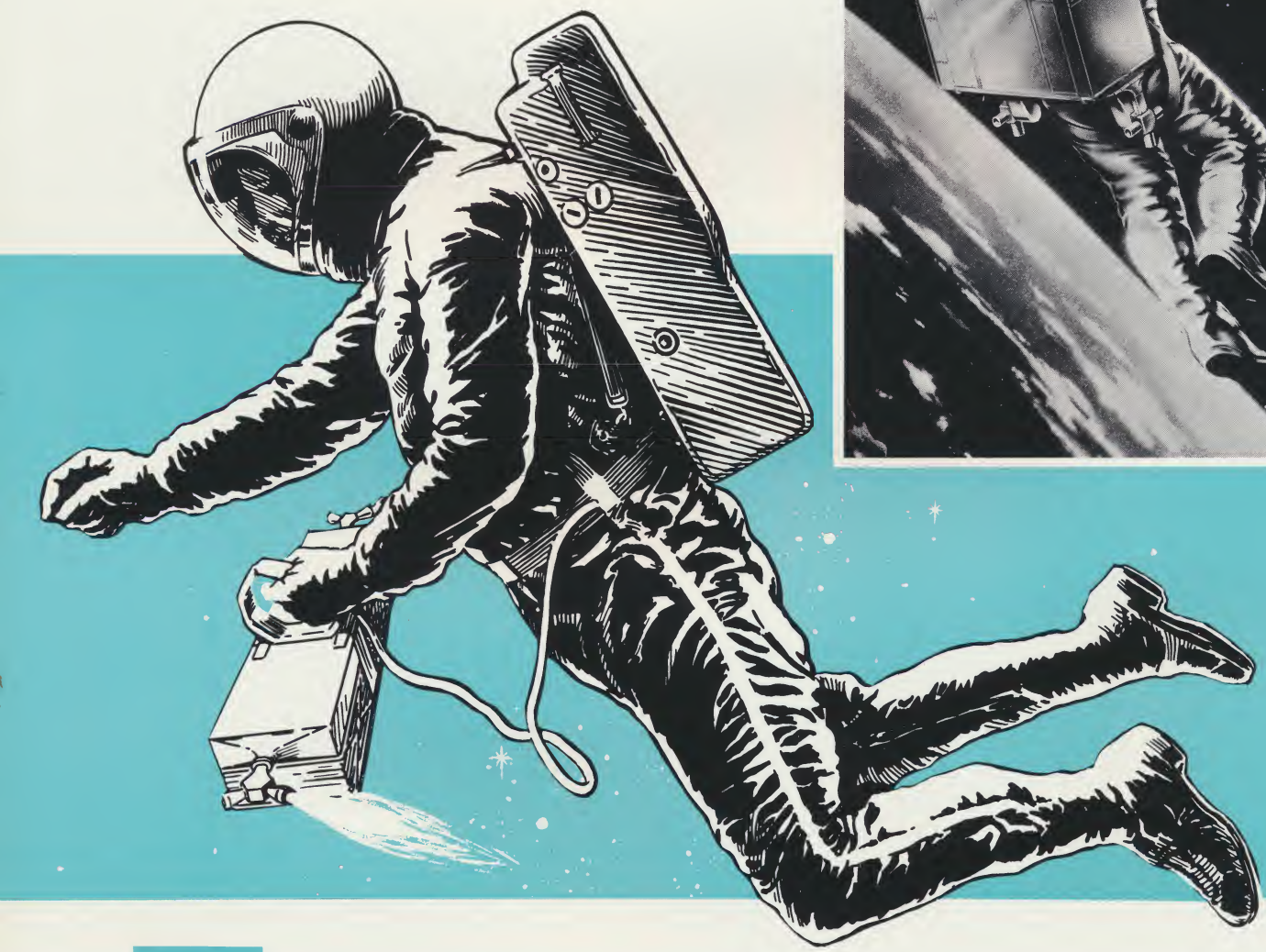
Encapsulated Solid Propellant Pulse Rockets

FOR

Extra Vehicular Activity



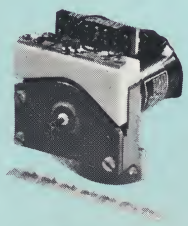
CURTISS-WRIGHT CORPORATION ■ WRIGHT AERONAUTICAL DIVISION
WOOD-RIDGE, NEW JERSEY U.S.A.

Encapsulated Solid Propella

The ESPPR concept has been proven during five years of development. Several unique features are particularly applicable to EVA devices.

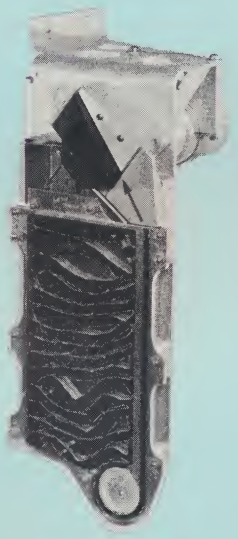
- SAFE ON-BOARD STORAGE
- INHERENT RE-LOAD CAPABILITY
- ROCKET MOTOR REDUNDANCY
- COMPLETE ON-BOARD SYSTEM VERIFICATION
- PRECISE PROPELLANT AVAILABILITY READ-OUT

ESPPR Hardware

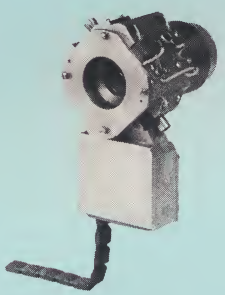


WSR-1
FEASIBILITY MODEL

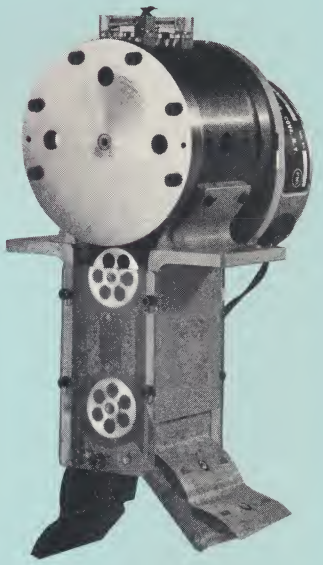
WSR-2
PROTOTYPE



WSR-2
FLIGHT SYSTEM



WSR-4
FOUR POSITION E-DOME PROTOTYPE



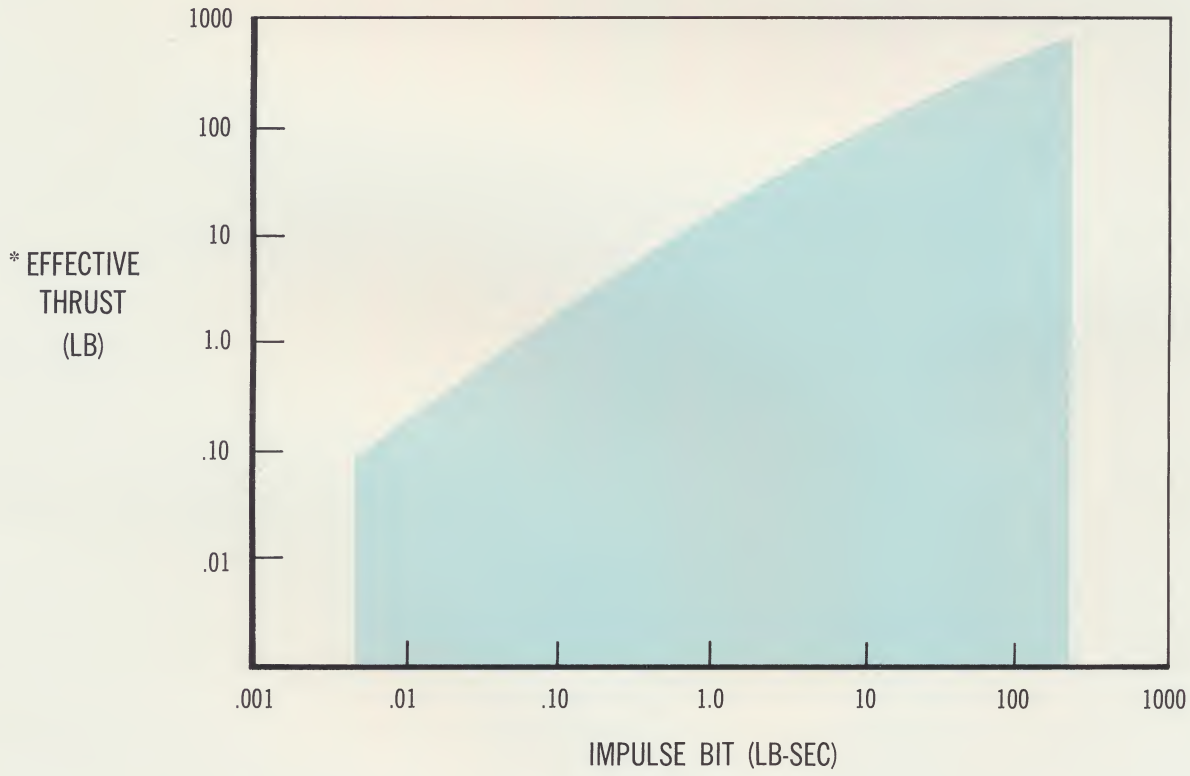
WSR-101
CAP CANNON PROTOTYPE

ant Pulse Rockets (ESPPR)

Test Experience

TOTAL FIRINGS	13,500
REPETITIVE FIRINGS	2,500
VACUUM	10^{-8} TORR FOR 30 DAYS
TEMPERATURE	−30°F TO + 180°F
VIBRATION	10 TO 2000 CPS. 3 TO 27g
RANDOM NOISE	20 TO 2000 CPS. 15 TO 22g
ACCELERATION	30g
IMPULSE BIT REPEATABILITY	$\sigma = 1.85\%$ FOR 100 FIRINGS
HIGH TEMPERATURE	NO FIRE AT 600°F
RADIATION	3.65×10^6 RADS
RANGE SAFETY	1 AMP. 5 MIN., NO FIRE
NON-JAMMING	10 CONSECUTIVE "BLOWS"
STORAGE SAFETY	FIRED CAPSULE IN LOADED MAGAZINE

ESPPR - Size Range



* Effective Thrust = Impulse per cap × number of caps fired per second.

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